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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,041	05/30/2001	Hideki Suzuki	9281-3981	6749

7590 03/16/2004

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EXAMINER	
SMITH, ZANDRA V	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/870,041	SUZUKI ET AL.	
	Examiner	Art Unit	
	Zandra V. Smith	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,6-9 and 13-18* is/are rejected.

7)☒ Claim(s) *2,3,5,10-12 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/3/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 6-9, and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by ***Ohmae (5,644,127)***.

As to **claims 1,** Ohmae discloses a rotary encoder and input device, comprising:

a moveable member (12) having light-transmitting regions disposed with a predetermined pitch and light-blocking regions (col. 3, lines 10-15);

a pair of photoelectric elements (14, 15) to detect light signals passing through the light-transmitting regions and thereby generate corresponding voltage signals in different phases A and B when the movable member is moved (col. 4, lines 38-42); and

a pair of wave-shaping circuits (col. 3, lines 15-25) to generate binary signals in accordance with said voltage signals, said binary signals to allow recognition of a direction of movement of the movable member (12), each wave-shaping circuit including a smoothing circuit to smooth the respective voltage signal and obtain a threshold voltage and a comparator to

compare the respective voltage signal and the respective threshold voltage and thereby generate one of the binary signals (col. 5, lines 42-68).

As to **claim 4,** Ohmae discloses everything claimed, as applied above, in addition the movable member is an encoder disk on which said light-transmitting regions and said light-blocking regions alternate in a circumferential direction (see fig. 1) and having two faces, a light emitting unit (13) is disposed opposing one face of the encoder disk, and said pair of photoelectric elements are disposed opposing the other face of the encoder disk.

As to **claim 6,** Ohmae discloses a rotary encoder and input device, comprising:

detecting light signals passing through light-transmitting region of a movable member (12); generating voltage signals in different phases A and B corresponding to the detected light signals;

smoothing the voltage signals;

obtaining threshold voltages from the smoothed voltage signals;

comparing the voltage signals and the threshold voltage; and

generating binary signals from the comparisons (col. 3, lines 15-25, col. 4, lines 38-42 and col. 5, lines 42-68).

As to **claim 7,** Ohmae discloses everything claimed, as applied above, in addition Ohmae provides an offset the smoothed voltage signals; and

obtains the threshold voltages from the smoothed voltage signals having the offset (col. 50-68).

As to **claim 8,** Ohmae discloses everything claimed, as applied above, in addition Ohmae provides said offset by averaging the voltage signals to produce a mean voltage, lowering the

mean voltage, and smoothes the lowered voltage and arithmetically altering the smoothed voltage signals by the smoothed lowered voltage (col. 6, line 50-col. 7, line 15).

As to **claim 9,** Ohmae discloses everything claimed, as applied above, in addition Ohmae positions an encoder disk that forms the movable member between a light source and light detectors; and

generates the light signals using the light source, the light signals detected by the light detectors (fig. 1 and col. 4, lines 30-50).

As to **claim 13,** Ohmae discloses a rotary encoder and input device, comprising:

detecting signals that correspond to movement of a movable member; dynamically adjusting threshold levels to vary with changes in the detected signals, comparing the detected signals with the threshold level, and generating binary signals from the comparison (col. 5, lines 45-68 and col. 6, line 50-col. 7, line 15).

As to **claim 14,** Ohmae discloses everything claimed, as applied above, in addition movement of the movable member is detected based on phase differences (col. 2, lines 1-10 and 29-35).

As to **claim 15,** Ohmae discloses everything claimed, as applied above, in addition light signals are detected (col. 5, lines 15-20).

As to **claim 16,** Ohmae discloses everything claimed, as applied above, in addition the signals are smoothed prior to adjusting the threshold signals (col. 5, lines 55-65).

As to **claim 17,** Ohmae discloses everything claimed, as applied above, in addition an offset to the smoothed signals is provided (col. 5, lines 50-65).

As to **claim 18,** Ohmae discloses everything claimed, as applied above, in addition Ohmae averages the signals to produce a means signal which is lowered, smoothed and altered (col. 6, line 50-col. 7, line 15).

Allowable Subject Matter

Claims 2-3, 5, 10-12, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious, a second pair of wave-shaping circuits, rotation about X and Y axis, adding or subtracting smoothed voltages, in combination with the rest of the limitations of the claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

WU (US 6,252,584 B1) and ***Sakuma et al. (US 6,323,786 B1).***

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (571) 272-2429. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zandra V. Smith
Primary Examiner
Art Unit 2877

March 8, 2004